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Osteoarthritis and Cartilage

Letter to the Editor

Performance-based tests to assess physical function in osteoarthritis of the hip or knee: comment and proposal

Sir,

A recommendation on performance-based tests to assess physical function in osteoarthritis (OA) of the hip or knee was recently published in *Osteoarthritis and Cartilage*[1]. I have major concerns about this recommendation.

First, the recommendation requires a minimal core set of three performance-based tests to be used 'prospectively as outcome measures in research, and also in clinical practice'[1]. The minimal core set comprises the 30-s chair stand test, 40 m fast-paced walk test, and a stair climb test. The feasibility of this recommendation is poor, as three tests require a substantial investment of time and resources. Subjects need to be instructed on these tests, they usually need a test trial, and they need to rest between tests – it is estimated that this procedure takes at least 15 min and frequently longer. Furthermore, a well trained tester, a chair, a 10 m free walking ally (needed for the 4×10 m = 40 m walk test), and a flight with a specific number of stairs are needed. In research and in clinical practice, these requirements constitute a major threat to feasibility and implementation of the recommendation.

It would have been a great step forward if a single and simple test would be used in all future trials – trials on pharmacological interventions, surgical interventions, and non-pharmacological interventions. This would allow comparison of outcomes among all trials, both within and between intervention categories.

A single test representing various activities provides substantial information on the impact of interventions on performance-based physical function. Three separate tests, as suggested in the present recommendation, provide more information. However, I believe that this level of sophistication is only required in trials on specific exercise modalities.

Second, the recommended minimal core set consists of the 30-s chair stand test, 40 m fast-paced walk test, and stair climb test. There is not sufficient evidence to support the recommendation of these specific tests.

In the absence of decisive information on clinimetric properties of available tests, the authors used a consensus process. A large international expert panel ($n = 116$) ranked tests on feasibility. This resulted in the 'timed up and go test' ranked as most feasible. This simple test assesses 'time required to rise from a standard armchair, walk as quickly but as safely as possible a distance of 3 m, turn, walk back to the chair and sit down'[1],. In the next phases of the consensus process, a much smaller group ($n = 10$) made the final selection of recommended tests. This resulted in a minimal core set of tests which were only in the middle range of the original feasibility ranking; the timed up and go test was not selected for the minimal core set. This suggests that in these later phases, personal preference had (too) much influence on the recommendation process.

For example, the authors seem to prefer tests that are set to time. The authors' preference for tests set to time is entirely based on reasoning, not on empirical data. The authors argue that with a test set to distance and measured by time, inability to perform the test means an absence of score; for that reason, they prefer tests set to time. This preference may or may not be justified. In the absence of empirical studies, the preference for a test set to time (e.g., 30-s chair stand test) over a test set to distance (e.g., timed up and go test) is not warranted. It seems that personal preferences, instead of empirical evidence, had a strong influence on the recommendation.

Third, in addition to three tests in the minimal core set, two other tests are recommended – the timed up and go test and 6-min walk test. The status of these latter tests is ambiguous: these tests are recommended, but not as core set. It is unlikely that these tests will be generally included in future studies, allowing comparison of findings between studies.

Standardization of measurement is highly desirable[2], also in the field of performance-based assessment of physical function in OA of the hip or knee. I would have preferred OARSI to come up with a recommendation on a single and highly feasible test representing various activities, allowing comparison of findings between studies. Other instruments could be recommended for more specific purposes, without the intention of a general comparison between studies. A specific proposal for the recommendation could be the following:

I. General test of performance-based physical function (required in all studies) – timed up and go test.
II. Tests for specific purposes (not generally required) – 30-s chair stand test, 40 m fast-paced walk test, 6-min walk test, and stair climb test.

Author contribution

Conception: Dekker.
Drafting the article or revising it critically for important intellectual content: Dekker.
Final approval of the version published: Dekker.
Dekker (j.dekker@vumc.nl) takes full responsibility for the integrity of the work as a whole, from inception to finished article.

Conflict of interest

The author declares no competing financial interests.

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